

What is claimed is:

1. A gas sensor comprising a sensor element which measures a predetermined gas component of an introduced measurement gas, and a protective cover which surrounds said sensor element, said protective cover including:

an inner protective cover which covers at least an end portion of said sensor element, an outer protective cover which covers said inner protective cover, and an intermediate protective cover which is installed between said inner protective cover and said outer protective cover,

wherein said inner protective cover has a bottom-equipped cylindrical shape with a plurality of inner gas inlet holes which are formed at positions of a side surface thereof facing said sensor element and with at least one inner gas discharge hole which is formed at a bottom portion;

said outer protective cover has a bottom-equipped cylindrical shape with a plurality of outer gas inlet holes, said outer gas inlet holes formed in a side surface of said outer protective cover at portions where said outer gas inlet holes do not face said inner gas inlet holes;

said intermediate protective cover has at least intermediate gas inlet holes which are formed at positions where said intermediate gas inlet holes do not face said inner gas inlet holes and said outer gas inlet holes; and

$A1/A2 \geq 1$

provided that A1 represents a total opening area of said inner gas inlet holes, and A2 represents a total opening area of said outer gas inlet holes.

5           2.    The gas sensor according to claim 1, wherein the number of said inner gas inlet holes is larger than the number of said outer gas inlet holes.

10           3.    The gas sensor according to claim 1, wherein said inner protective cover has plate sections each of which extends over each of said inner gas inlet holes.

15           4.    The gas sensor according to claim 1, wherein said inner gas inlet holes are formed at approximately equal pitches along one circumference of said inner protective cover.

20           5.    The gas sensor according to claim 1, wherein said inner gas inlet holes are classified into first, second, ... and nth groups;

inner gas inlet holes in said first group are formed at approximately equal pitches along a first circumference of said inner protective cover;

25           inner gas inlet holes in said second group are formed at approximately equal pitches along a second circumference of said inner protective cover; and

inner gas inlet holes in said nth group are formed at

approximately equal pitches along an nth circumference of  
said inner protective cover.

5        6.    The gas sensor according to claim 1, wherein said  
protective cover is attached substantially perpendicularly  
to a gas tube.

10       7.    The gas sensor according to claim 1, wherein said  
protective cover is attached while being inclined to a gas  
tube.